

Topographic Maps

Key Concepts

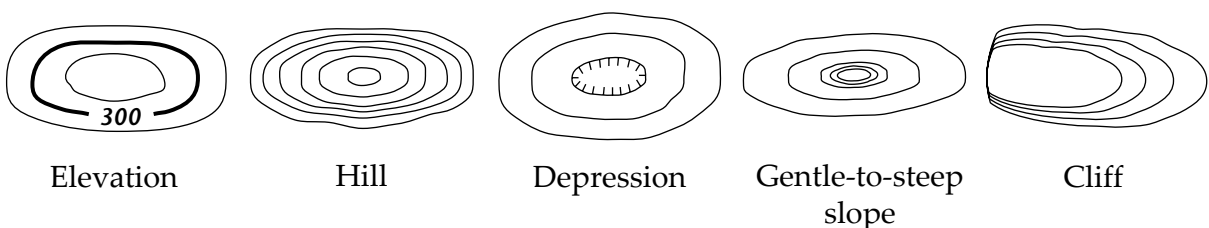
- How do mapmakers represent elevation, relief, and slope?
- How do you read a topographic map?
- What are some uses of topographic maps?

A **topographic map** is a map showing the surface features of an area. Topographic maps use symbols to show the land as if you were looking down on it from above. Topographic maps provide very accurate information on the elevation, relief, and slope of the ground surface.

Mapmakers use contour lines to represent elevation, relief, and slope on topographic maps. On topographic maps a **contour line** connects points of equal elevation. The change in elevation from contour line to contour line is called the **contour interval**. The contour interval for a given map is always the same. Usually, every fifth contour line, known as an **index contour**, is darker and heavier than the others. **Index contours** are labeled with the elevation above sea level in round units, such as 2,000 feet above sea level.

On a topographic map, closely spaced contour lines show steep slopes. Contour lines that are farther apart show gentle slopes. A contour line that forms a closed loop with no other contour lines inside it indicates a hilltop. A closed loop with dashes inside indicates a depression. V-shaped contour lines pointing downhill indicate a ridge line. V-shaped contour lines pointing uphill indicate a valley.

Topographic maps have many uses in science and engineering, business, government, and everyday life. Businesses use them to help decide where to build new stores, housing or factories. Engineers in cities and towns use topographic maps. To design a safe highway over a mountain pass, you need a route that avoids the steepest slopes. To protect the area's water supply, the highway must stay a certain distance from rivers and lakes. You also want to find a route that avoids houses and other buildings. Local governments use topographic maps to decide where to build schools and other public buildings. Topographic maps have recreational uses as well. If you were planning a bicycle trip, you could use a topographic map to see where your trip would be flat or hilly. Below are some topographic map symbols.



Mapping Earth's Surface ▪ *Guided Reading and Study***Topographic Maps**

This section describes a special type of map called a topographic map. It also describes how and why topographic maps are used.

Mapping Earth's Topography

1. A map that shows the surface features of an area is called a(n) _____ map.
2. List three types of information about the ground surface that are provided by topographic maps.
 - a. _____
 - b. _____
 - c. _____
3. Every fifth contour line, or _____, is usually darker and heavier than the other contour lines.
4. Is the following sentence **true** or **false**? The contour interval for a given topographic map is always the same. _____

Reading a Topographic Map

5. Is the following sentence **true** or **false**? Every other contour line on a topographic map is labeled with the elevation. _____
6. Circle the number of contour lines you would need to show a change in elevation of 1,000 feet on a map with a contour interval of 200 feet.
 - a. 5
 - b. 10
 - c. 20
 - d. 50
7. Circle the contour interval if ten contour lines show a change in elevation of 2,000 feet.
 - a. 10
 - b. 100
 - c. 200
 - d. 500

8. Complete the table with the definitions of each type of contour symbol.

Type of Symbol	Definition
Contour Line	a.
Contour Interval	b.
Index Contour	c.

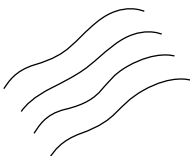
d. Suppose two cities in the United States have the same elevation. Which type of contour symbol would connect them? _____

e. Suppose you are looking at a contour symbol labeled "2500." Which type of symbol is it? _____

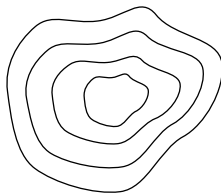
9. How close the contour lines are is an indication of an area's _____.

10. What do V-shaped contour lines indicate when they point downhill? When they point uphill?

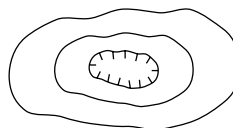
11. Label each section of topographic map to indicate whether it shows a **steep slope**, a **gentle slope**, a **depression**, or a **hilltop**.



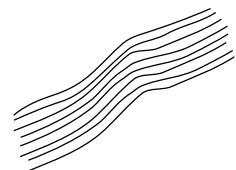
a. _____



b. _____



c. _____



d. _____

Uses of Topographic Maps

13. How do businesses and governments use topographic maps?

14. Why might you use a topographic map if you were planning a bicycle trip?

15. How can index contours be identified?

16. How could a person who snow skis or hikes use a topographic map?

Building Vocabulary

Fill in the blank to complete each statement.

17. The change in elevation from one contour line to the next is called the _____.

18. _____ are labeled with the elevation in round units.

19. A(n) _____ connects points of equal elevation on a topographic map.

20. A(n) _____ map shows the surface features of an area.